IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Withdrawn) An image contour extraction method comprising the steps of:

inputting image data and shape data which is a binary image representing a provisional region of an object in the image data;

reducing the image data and the shape data;

performing coarse contour position correction on the basis of the reduced image data and shape data to coarsely bring a contour of the shape data close to a contour of the image data; and

performing main contour position correction to match the contour of the shape data to the contour of the image data on the basis of the image data and the coarsely adjusted shape data obtained by the coarse contour position correction,

wherein the coarse contour position correction includes arranging a plurality of search reference blocks, each having a first size, on the contour of reduced shape data, searching, for each of the search reference blocks, the reduced image data for a similar block having a texture similar to that of the search reference block and having a second size larger than the first size, and replacing all the search reference blocks with correction shape data obtained by extracting data of the similar blocks from the reduced shape data and reducing the data to the first size, and

the main contour position correction includes arranging a plurality of search reference blocks, each having a third size; searching, for each of the search reference blocks, the input image data for a similar block having a texture similar to that of the search reference block and having a fourth size larger than the third size, and replacing all the search reference blocks with correction shape data obtained by extracting data of the similar blocks from the shape data and reducing the data to the third size.

2. (Withdrawn) A method according to claim 1, wherein the coarse contour position correction is repeated a plurality of number of times, and the size of the search reference block is decreased as the coarse contour position correction is repeated.

3. (Withdrawn) A method according to claim 1, wherein the coarse contour position correction comprises limiting a similar block search range to a direction perpendicular to a direction of a contour of shape data in a search reference block.

4. (Currently Amended) An object extraction method comprising ~~the steps of~~:

~~comparing each portion of first image data obtained by capturing an extraction object with another portion of the first image data or second image data, thereby generating shape data as an image representing a provisional region of the extraction object in the first image data~~ preparing a plurality of candidate regions of shape data;

setting as a provisional region of an extraction object, one of the candidate regions which exhibits a largest difference between a statistical characteristic of inside pixel values and that of outside pixel values to generate initial shape data representing the provisional region; and

matching a contour of the initial shape data to a contour of the extraction object by using ~~the first~~ current image data and the ~~provisionally generated~~ initial shape data, the current image data obtained by capturing the extraction object.

5. (Canceled)

6. (Currently Amended) A method according to claim 4, wherein the ~~shape data generating step~~ setting comprises comparing current ~~input~~ image data ~~corresponding to the first image data~~ with background image data ~~corresponding to the second image which is~~ acquired in advance without capturing the extraction object, and setting a region in which the

current ~~input~~ image data differs in value from the background image data as a provisional region of the extraction object.

7. (Currently Amended) A method according to claim 4, wherein the ~~first step~~ setting comprises,

holding image data of a frame from which a region of the extraction object has already been obtained and shape data as reference image data and reference shape data, respectively,

performing motion detection with respect to the current input image data corresponding to the first image data by referring to the reference image data, and

performing motion compensation for the reference shape data on the basis of the motion detection result, ~~thereby generating~~ to generate the ~~provisional~~ initial shape data.

8. (Withdrawn) An object extraction method comprising the steps of:

inputting image data and shape data as an image representing provisional regions of extraction objects in the image data;

arranging a plurality of search reference blocks, each having a first size, on a contour portion of the shape data;

searching the same image for a similar block, for each of the search reference blocks, which has a texture similar to that of the search reference block and a block size larger than that of the search reference block; and

replacing shape data in each of the search reference blocks with correction shape data which is obtained from a corresponding one of the similar blocks and has undergone size correction by reduction processing,

wherein the shape data has different pixel values in an object region and a background region which differ from each other, and

the reduction processing in the replacing step uses a pixel value of one of pixels around a sampling point of the shape data as a sampling value.

9. (Withdrawn) An image contour extraction method comprising the steps of:

displaying an original image on a display screen on the basis of original image data;

manually setting a rough contour of an object displayed on the display and generating shape data corresponding to the rough contour; and

performing contour position correction by a self-affine mapping technique to match an actual contour of the object to the rough contour,

wherein the contour position correction includes performing reduction processing for the original image data and shape data to obtain a reduced original image and reduced rough contour obtained by reducing the original image and rough contour, and performing coarse contour position correction by the self-affine mapping technique using the reduced original image data and shape data, thereby coarsely bringing the rough contour close to the contour of the original image, and performing main contour position correction by the self-affine mapping technique using the coarsely adjusted shape data and original image data obtained by the coarse contour position correction, and matching the rough contour to the contour of the original image.

10. (Withdrawn) A method according to claim 9, wherein the coarse contour position correction comprises the steps of arranging a plurality of search reference blocks, each having a first size, on the reduced rough contour, searching, for each of the search reference blocks, the reduced image data corresponding to the search reference block for a similar block having a texture similar to that of the reduced original image and a second size larger than the first size of the search reference block, and replacing all the search reference blocks with correction shape data obtained by extracting data of the similar blocks from the shape data and reducing the data to the first size.

11. (Withdrawn) A method according to claim 10, wherein the main contour position correction comprises the steps of arranging a plurality of search reference blocks, each having

a third size, on the rough contour, searching, for each of the search reference blocks, the original image data corresponding to the search reference block for a similar block having a texture similar to that of the original image and a fourth size larger than the third size of the search reference block, and replacing all the search reference blocks with correction shape data obtained by extracting data of the similar blocks from the rough contour and reducing the data to the third size.

12. (Withdrawn) A method according to claim 9, wherein the coarse contour position correction comprises the step of obtaining a 1/2 reduced original image by reducing the original image and rough contour to 1/2.

13. (Withdrawn) A method according to claim 9, wherein the coarse contour position correction is repeated a plurality of number of times, and a size of the search reference block is decreased as the coarse contour position correction is repeated.

14. (Withdrawn) A method according to claim 9, wherein the coarse contour position correction comprises limiting a similar block search range to a direction perpendicular to a direction of a contour of shape data in a search reference block.

15. (Withdrawn) A method according to claim 9, wherein the coarse contour position correction comprises reducing a block size of a search reference block to 1/2 vertically and horizontally, checking whether the reduced block size of the search reference block is smaller than a reference value, and advancing the main contour position correction if the block size is smaller than the reference value and returning to the reduction step if the block size is not smaller than the reference value.

16. (Withdrawn) A transmission system comprising a server and client which mutually transmit/receive transmission/reception data,

said client including:

an object extraction section which obtain extracted image data by extracting an object from image data obtained by capturing an extraction object,

a client transmission section which transmits the extracted image data as down stream transmission/reception data to said server without any change or upon compression,

a client reception section which receives upstream transmission/reception data sent from said server and handles the transmission/reception data as image data if the data is not compressed and reproduces the image data if the data is compressed, and

a display which displays the image data, and

said server including:

a server reception section which receives the downstream transmission/reception data, handles the transmission/reception data as extracted image data if the data is not compressed, and reproduces the extracted image data if the data is compressed,

a composite section which synthesizes the extracted image data with one composite image data, and

a server transmission section which transmits the composite image data as the upstream transmission/reception data without any change or upon compression.

17. (Withdrawn) A transmission system comprising a plurality of communication terminals for mutually transmitting/receiving transmission/reception data,

said communication terminal including:

an object extraction section which obtains extracted image data by extracting an object from image data,

a transmission section which transmits the extracted image data as inter-communication-terminal transmission/reception data to another communication terminal without any change or upon compression,

a reception section which receives the inter-communication-terminal transmission/reception data sent from another communication terminal, handles the

transmission/reception data as extracted image data without any change if the data is not

compressed, and reproduces the extracted image if the data is compressed,

a composite section which synthesizes the extracted image data with one composite

image data, and

a display which displays the composite image data.